

**REMARKS**

This Amendment is filed in response to the final Official Action of April 19, 2007, and concurrent with a Request for Continued Examination (RCE). Initially, Applicant would like to thank the Examiner for taking the time to conduct a telephone interview with Applicant's undersigned attorney regarding the final Official Action. By way of background, the Examiner previously issued a restriction requirement between two groups of invention, Group I including Claims 16-24 directed to a method of cooling a fiber amplifier, and Group II including Claims 1-15 directed to a system (device) for cooling a fiber amplifier. And at least as to Group II, the Examiner required further restriction between three species, namely Species D shown in FIG. 4, Species E shown in FIG. 5, and Species F shown in FIG. 6. In response to the restriction requirements, Applicant elected to prosecute the claims of the Group II (Claims 1-15). And noting that whereas Claims 1-8 were particularly directed to Species F, the remaining claims of Group II (i.e., Claims 9-15) were generic to species D, E and F, we requested that all of Claims 1-15 be considered.

Following a first a first substantive Official Action considering Claims 1-15, Applicant received the aforementioned final Official Action. The final Official Action now revises the restriction requirement, alleging that Claims 9-13 and 15 are directed to non-elected Species D. As such, the final Official Action considers Claims 9-13 and 15 to be withdrawn from consideration. And like the first Official Action, the final Official Action continues to indicate that Claims 7 and 8 are allowable. Nonetheless, and also like the first Official Action, the final Official Action continues to reject the remaining claims under consideration, namely Claims 1-6, under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2005/0111804 to Bjarklev et al., in view of U.S. Patent No. 6,377,591 to Hollister et al.

As explained below, however, Applicant respectfully submits that Claims 9-13 and 15 are not in fact directed to Species D of FIG. 4, and accordingly, traverse any conclusion that those claims are directed to that species. Further, Applicant respectfully submits that the claimed invention is patentably distinct from Bjarklev and Hollister, taken individually or in combination. Accordingly, Applicant respectfully traverses the rejections of the claims. Nonetheless, Applicant has amended independent Claim 1 and dependent Claim 14 to further clarify the

claimed invention. In view of the amendments to Claims 9 and 14, and the remarks presented herein, Applicant respectfully requests reconsideration and allowance of all of the pending claims of the present application.

***A. Claims 9-13 and 15 are not directed to Species D of FIG. 4***

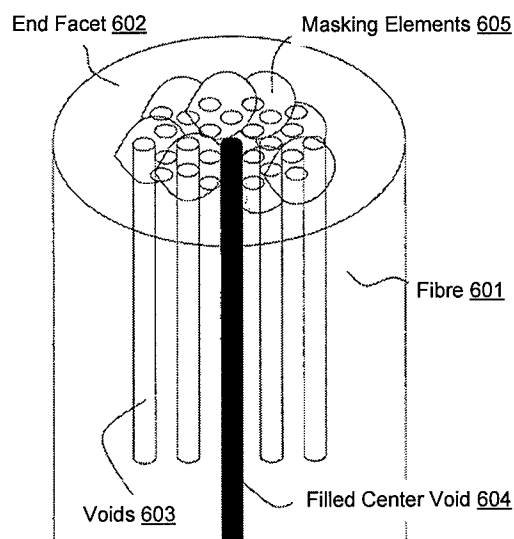
As indicated above, the final Official Action alleges that Claims 9-13 and 15 are directed to non-elected Species D shown in FIG. 4, and has accordingly withdrawn these claims from consideration. Applicant respectfully disagrees. As explained in response to the restriction requirement, Claims 9-15 are generic to Species D, E and F. That is, Claims 9-15, are directed to a system including a fiber amplifier assembly having one or more sheet spacers, and a fiber amplifier, as shown in FIG. 7, and not the fiber amplifier fiber amplifier shown in FIG. 4 (Species F). As claimed, however, none of Claims 9-15 are particular to a fiber amplifier having a retaining structure, whether a spiral spacer (Species D, shown in FIG. 4), a fluted structure (Species E, shown in FIG. 5), or an emulsion of phase change material (Species F, shown in FIG. 6). In this regard, and particular to the serpentine mounting noted in the final Official Action, Applicant notes that Species D of FIG. 4 clearly discloses a spiral spacer 46 around a fiber amplifier 34, whereas the system of Claims 9-15 is clearly directed a fiber amplifier 34 that itself is mounted in a serpentine manner.

For at least the foregoing reasons, Applicant again respectfully submits that Claims 9-13 and 15 are generic to Species D, E and F; and therefore respectfully request consideration of these claims.

***A. Claims 1 – 6 and 14 are Patentable over Bjarklev in view of Hollister***

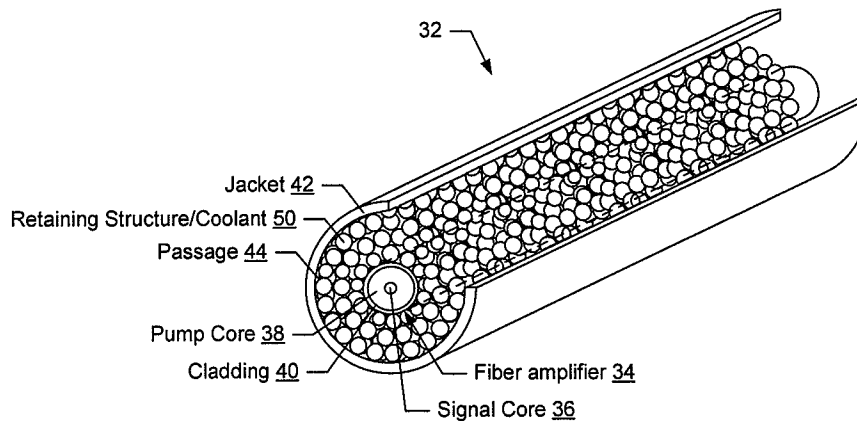
Briefly, and with reference to its FIG. 6 reproduced (and annotated) below, Bjarklev discloses a composite material photonic crystal fiber (spelled “fibre” in Bjarklev) for transmission of light at a predetermined wavelength. As disclosed, the optical fiber includes a core region, an inner cladding region and an outer cladding region. The inner cladding region has spaced apart voids, at least some of which are at least partly filled with a fluid substance to modify a refractive index in the cross-section of the fiber. In this regard, the fluid substance may

be introduced by preparing and fixing the fiber ends, identifying the voids to be filled and infusing the fluid therein while masking openings in the remaining voids. By selective heating of parts of the fiber, the location of the fluid substance in the void may be controlled to extend over only a fraction of the length of the void that extends the length of the fiber.



Bjarklev, FIG. 6 (annotated)

According to a one aspect of the claimed invention, as reflected for example by amended independent Claim 1 and with reference to FIG. 4 reproduced (and annotated) below, a system is provided for cooling a fiber amplifier. As recited, the system includes a fiber amplifier assembly with a longitudinally-extending fiber amplifier. The system also recites a jacket surrounding the fiber amplifier, including the core and the cladding, and extending at least partially longitudinally therealong. The jacket surrounds the fiber amplifier such that the fiber amplifier assembly defines a passage between the jacket and the fiber amplifier, including the core and the cladding, for the circulation of coolant therethrough. In this regard, the fiber amplifier assembly further includes a retaining structure disposed within the passage defined by the fiber amplifier assembly for at least partially maintaining spacing between the fiber amplifier and jacket, where the retaining structure and coolant comprise an emulsion of phase change material.



Present Application, FIG. 4 (annotated)

As explained in response to the first Official Action, in contrast to the first aspect of the claimed invention, Bjarklev (or Hollister) does not teach or suggest a fiber amplifier assembly including a fiber amplifier (with core and cladding) and a jacket surrounding the fiber amplifier (and its core and cladding) to thereby define a passage for the circulation of coolant, and further including a retaining structure within the passage for at least partially maintaining spacing between the fiber amplifier (and its core and cladding) and the jacket. The Official Action alleges that Bjarklev discloses this feature of the claimed invention. Bjarklev does disclose fibers with cladding and/or core regions including a number of spaced-apart voids, at least some of which are at least partially filled with an active material. Bjarklev does not teach or suggest, however, that any of those voids are defined by a jacket surrounding a fiber amplifier including its core and cladding, similar to the passage of the claimed invention. In addition, Bjarklev does not teach or suggest that any of the voids include a retaining structure for at least partially maintaining spacing between the fiber amplifier (and its core and cladding) and the jacket, similar to the assembly of the claimed invention.

Moreover, as conceded by the Examiner in the first Official Action, neither Bjarklev nor Hollister, taken individually or in combination, teach or suggest a sheet spacer through which a fiber amplifier is mounted in a serpentine manner, as recited by withdrawn independent Claim 9.

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And as dependent Claim 14 (under consideration) is construed to include all the limitations of independent Claim 9 from which it depends (*see* 37 CFR 1.75(c)), Applicant respectfully submits that Claim 14 is patentably distinct from Bjarklev and Hollister, taken individually or in combination, for at least the reason that neither individually or in combination teach or suggest the aforementioned features of withdrawn independent Claim 9, and by dependency Claim 14.

For at least the foregoing reasons, Applicant respectfully submits that the rejection of Claims 1-6 and 14 as being unpatentable over Bjarklev in view of Hollister is overcome.

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### **CONCLUSION**

In view of the amendment to Claims 9 and 14, and the remarks presented above, Applicant respectfully submits that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicant's undersigned attorney in order to resolve any remaining issues. Applicant further notes that as Applicant's remarks with respect to the rejections are sufficient to overcome these rejections, Applicant's silence as to other assertions in the Official Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserve the right to analyze and dispute such in the future.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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